

# PEB-3730/3732 Series

## Embedded System Board

### User's Manual

P/N: B8981070    Version 1.0

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## How to Use This Manual

The manual describes how to configure your PEB-3730/3732 series system to meet various operating requirements. It is divided into five chapters, with each chapter addressing a basic concept and operation of Single Board Computer.

**Chapter 1 : System Overview.** Presents what you have in the box and give you an overview of the product specifications and basic system architecture for this series model of single board computer.

**Chapter 2 : Hardware Configuration.** Shows the definitions and locations of Jumpers and Connectors that you can easily configure your system.

**Chapter 3 : System Installation.** Describes how to properly mount the CPU, main memory and Compact Flash to get a safe installation and provides a programming guide of Watch Dog Timer function.

**Chapter 4 : BIOS Setup Information.** Specifies the meaning of each setup parameters, how to get advanced BIOS performance and update new BIOS. In addition, POST checkpoint list will give users some guidelines of trouble-shooting.

**Chapter 5 : Troubleshooting.** Provides various useful tips to quickly get PEB-3730/3732 series running with success. As basic hardware installation has been addressed in Chapter 3, this chapter will basically focus on system integration issues, in terms of backplane setup, BIOS setting, and OS diagnostics.

The content of this manual and EC declaration document is subject to change without prior notice. These changes will be incorporated in new editions of the document. **Portwell** may make supplement or change in the products described in this document at any time.

Updates to this manual, technical clarification, and answers to frequently asked questions will be shown on the following web site : <http://www.portwell.com/>.

## EC Declaration of Conformity (To Be Added)

For the following equipment:

Product Name:

Model Name:

Trade Name:

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC). The equipment was evaluated and passed the test, the following standards were applied :

EMC :	EN 55022	(1994/ A1:1995 Class A)
	EN 50082-2	(1991)
	EN 61000-4-2	(1995)
	EN 61000-4-3	(1996)
	EN 61000-4-4	(1995)
	EN 61000-3-2	(1995)
	EN 61000-3-3	(1995)

The following manufacturer is responsible for this declaration :

Portwell, Inc.  
(Company Name)

3F, No.88, Sec.1, Nei-Hu Rd., Taipei, Taiwan, R.O.C.  
(Company Address)

Taipei, R.O.C.  
Place

\_\_\_\_\_  
Date

\_\_\_\_\_  
Legal Signature of  
Authorized Person

## Chapter 1

# System Overview

PEB-3730VLA is designed based on Intel® 855GME with high performance and high integration but low power consumption platform. It is positioned at innovation, high integration and high quality Embedded System Board in the embedded computing market.

The board is based on Intel 855GME chipset and latest high performance low power processor, Intel® Pentium® M Processor, running at up to 1.6Ghz with 400Mhz Process system bus and 90nm process technology with 533Mhz. With Intel 855GME chipset that support high speed ECC DDR SDRAM, high-performance graphic controller AGP 4X controller with dual display/Panel and Intel fast Ethernet connection enable Portwell PEB-3730 series to provide most versatile low power Embedded System Board (ESB) in the market.

All in all, PEB-3730 series are designed to meet all kinds of low power embedded computing application. With Intel most advance mainstream chipset for low power mobile computing 855GME, PEB-3730VLA is aiming the low power mobile multimedia and networking applications in the market.

Its compact design with industry 5.25" ESB standard form factor makes it the most favorable solution for high-density server. High reliability, compact size and easy-to-use features fulfill the demand for critical embedded and Interactive client application including Wearable computing, Heath care, Vehicle, POS, KIOSK, ATM, Gaming and medical application.

### Key Features:

---

- **Compact 5.25" ESB form factor to fit in most wide range of system architecture**
- **Intel new generation mobile longevity chipset Intel® 855GME powered by Pentium® M with frequencies of up to 2.0GHz (with uFC-PGA socket 478 for easy processor configuration)**
- **Dual independent on-board display support CRT, LVDS and DVO for other display possibility like DVI**
- **On-board standard I/O, display, LVDS panel, network and audio to meet the requirements of interactive client platform**
- **On-board 10/100BASE-TX Ethernet to provide network connection**
- **Up to 1GB high performance DIMM DDR SDRAM allows to run versatile embedded programs but keep lower profile for slim system design for ultra low voltage model**
- **One PCI (with PCI expansion capability defined by EmbATX)**
- **One Type II CF socket for 8~320MB Compact Flash disk to provide space of resident system setting, data and software**

## PEB-3732 series

Portwell also provide a ultra low power model with Intel Celeron M 600Mhz processor since this model adopt uFC-BGA2 packaged processor we only provide a default model as PEB-3732VLA

PEB-3732VLA is based on Intel® 852GM with ultra low voltage Celeron M processor. It is positioned at cost effective and low power fan-less Embedded System Board in the growing embedded computing market.

The board is based on Intel 852GM chipset and latest Intel low power processor, Intel® Celeron® M Processor, running at 600Mhz with 400Mhz Process system bus. With Intel 852GM chipset that support high speed ECC DDR SDRAM, high-performance graphic controller AGP 4X controller with dual display/Panel and dual Intel fast Ethernet connection enable Portwell PEB-3732 series to provide most versatile low power Embedded System Board (ESB) in the market.

### Key Features:

---

- **Compact 5.25" ESB form factor to fit in most wide range of system architecture**
- **Intel new generation mobile longevity chipset Intel® 852GM powered by ULV Celeron M 600 Mhz (with uFC-BGA, direct mount to board)**
- **Dual independent on-board display support CRT, LVDS and DVO for other display possibility**
- **On-board standard I/O, display, LVDS panel, network and audio to meet the requirements of interactive client platform**
- **On-board 10/100BASE-TX Ethernet to provide network connection**
- **Up to 1GB high performance DIMM DDR SDRAM allows to run versatile embedded programs but keep lower profile for slim system design for ultra low voltage model**
- **One PCI (with PCI expansion capability defined by EmbATX)**
- **One Type II CF socket for 8~320MB Compact Flash disk to provide space of resident system setting, data and software**

## 1.1 Check List

The PEB-3730/3732 series package should include the following items:

- ✓ One Portwell Embedded System Board
- ✓ One User's Manual
- ✓ One Installation Resources CD Title

One optional cable set for system integration, includes:

- ✓ One IDE cable with 44pin to 40pin converter
- ✓ One FDC cable (2.0mm pitch)
- ✓ One serial port cable with 2 connectors
- ✓ One USB cable, 2 ports
- ✓ One parallel port cable
- ✓ One VGA cable
- ✓ One PS/2 keyboard and mouse cable
- ✓ One Fast Ethernet Cable
- ✓ One audio in/out cable
- ✓ One I/O connector extension board
- ✓ ATX power cable
- ✓ HDD and power indicator cable

If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

## 1.2 Product Specification

### PEB-3730VLA

- **Chipset**
  - Intel 855GME
  - Intel GMCH and Intel ICH4
- **CPU**
  - Intel Pentium® M or Celeron M
  - Support socket 478 Pentium® M processor up to 1.8GHz
  - FSB speed 400MHz (easy upgrade to 533Mhz)
  - 1MB/2MB L2 cache (Pentium-M), 2x32KB L1 cache
- **System memory**
  - One DIMM sockets
  - Supports 200/266/333MHz DDR SDRAM up to 1GB
  - Available bandwidth up to 2.1GB/s (DDR266)
  - 64/128/256/512 Mb SDRAM technologies

- 64bit non-parity
- 2.5V DDR SDRAM support
- Registered DIMM not supported
- Support ECC functionality
- **SSD**
  - One type I or type II Compact Flash socket
- **Display controller**
  - Intel GMCH integrated graphics controller (855GME Integrated Intel Extreme graphics 2)
  - Intel DVMT shared display memory up to 64MB DDR Memory
  - Analog Display Support up to 2048 x 1536 @ 60Hz refresh
  - Multiplexed Digital Display Channels supports flat panels up to 2048x1536 @ 60Hz or CRT/HDTV at 1920 x 1080 x 18 & 24bpp @ 85Hz
  - AGP 4X. 1.5V (Intel Direct AGP)
  - Software DVD at 30 fps, full screen
  - Motion Video Acceleration
  - Dual channel LVDS interface for LVDS Panel Display
  - Support TMDS DVI port (through daughter board)
  - Analogue and digital output through one DVI-I connector (on daughter board)
  - Panel Signal voltage must be 3.3V or 5V
  - Inverter voltage: 12V
  - Dual LVDS ports possible (thorough daughter board)
- **System BIOS**
  - Award BIOS with PC'98 support
  - 4Mbit flash ROM (Intel FWH) for easy upgrade
  - Support DMI, PnP, Green function and ACPI (default support)
  - ACPI support suspend to RAM, USB wake up
- **Storage**
  - IDE Interface
    - Support one enhanced IDE channel up to two HDDs or CD-ROM support PIO 4, Ultra DMA/33/66/100 and Bus master feature.
- **On Board I/O**
  - I/O
    - Support four serial ports
    - Parallel port support SPP/EPP/ECP
    - Support four USB 2.0 Ports;UHCI compliant
    - Support one IrDA (share one serial port)
- **Hardware Monitoring**
  - Support CPU voltage, temperature and FAN monitoring
  - TBD
- **Watch Dog Timer**
  - Support Watch-Dog Timer



- **PCI Expansion**
  - Support one standard PCI slot (EmbATX defined)
  - PCI slot with expansion capability (through riser card up to 3 PCI slots)
  - PCI bus mastering
- **On Board Ethernet**
  - Support 10/100 MB Base-TX
  - One ICH4 Integrated MAC controller with external 10/100 Mb phy 562 )
  - Support two LEDs to indicator LAN access and link status on RJ45 jack
- **Audio**
  - AC97 v2.3 CODEC
  - 1/8" photo jack for line in or microphone
  - 1/8" photo jack for line out
  - 4-pin stereo CDIN header for external CD line in
- **ACPI compliant support the full-on (S0), Stop Grant (S1), power management states if ATX power supply unit applied**
- **Real Time Clock/Calendar (RTC)**
  - Compatible for 7 years of data retention to support real Y2K
  - An external Li battery
  - Overcurrent protection to comply with IEC 601
- **Power on/off**
  - Soft on and 4 seconds override
  - Header for connection to membrane switch
- **Keyboard and PS/2 Mouse interface**
  - Support one mini-DIN 6-pin connectors for keyboard and mouse
- **Internal Connector**
  - IDE connector
  - LCD LVDS interfaces
  - LCD inverter interface
  - PS/2 mouse connector
  - 3-pin, 0.10" pitch fan header
  - 8-pin input power header
  - 8-pin header for connection to membrane switch panel
  - 2-pin reset header
  - 10-pin header x2 for USB
- **Physical and Environmental requirements**
  - Outline Dimension (L x W): 203mm X 146mm (with Portwell standard 5.25" ESB dimension and mounting)
  - Power requirements: TBD
  - Operating temperature: 0 to 55 °C
  - Relative Humidity 5% to 95%, non-condensing

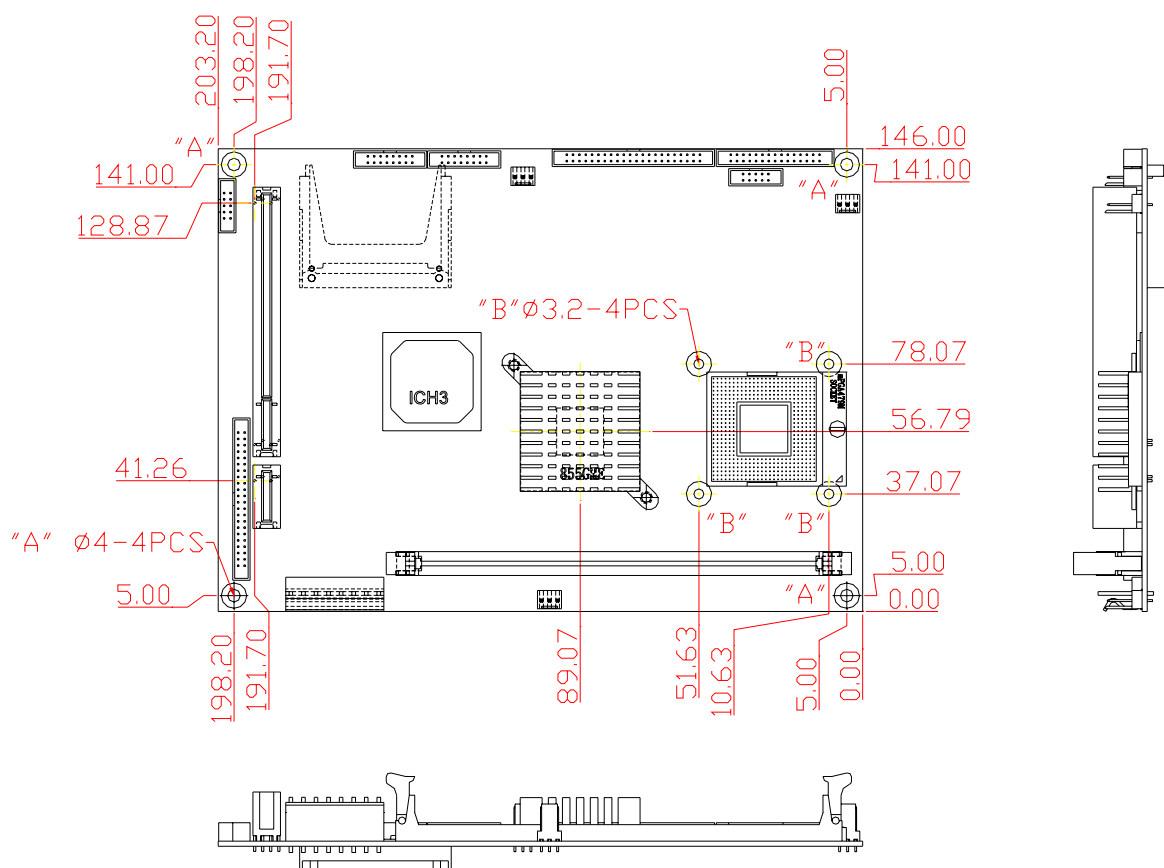
## PEB-3732VLA

- **Chipset**
  - Intel 852GM
  - Intel GMCH and Intel ICH4
- **CPU**
  - Intel ULV Celeron M
  - FSB speed 400MHz
  - 2x32KB L1 cache
  - 512KB L2 cache (Celeron-M) (also support 0K L2 cache model by specific project based)
- **System memory**
  - One DIMM sockets
  - Supports 200/266MHz DDR SDRAM up to 1GB
  - Available bandwidth up to 2.1GB/s (DDR266)
  - 64/128/256/512 Mb SDRAM technologies
  - 64bit non-parity
  - 2.5V DDR SDRAM support
  - Registered DIMM not supported
  - Support ECC functionality
- **SSD**
  - One type I or type II Compact Flash socket
- **Display controller**
  - Intel GMCH integrated graphics controller (852GM Integrated Intel Extreme graphics 2)
  - Intel DVMT shared display memory up to 64MB DDR Memory
  - Analog Display Support up to 2048 x 1536 @ 60Hz refresh
  - Multiplexed Digital Display Channels supports flat panels up to 2048x1536 @ 60Hz or CRT/HDTV at 1920 x 1080 x 18 & 24bpp @ 85Hz
  - AGP 4X. 1.5V (Intel Direct AGP)
  - Software DVD at 30 fps, full screen
  - Motion Video Acceleration
  - Dual channel LVDS interface for LVDS Panel Display
  - Support TMDS DVI port (through daughter board)
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  - Dual LVDS ports possible (thorough daughter board)
- **System BIOS**
  - Award BIOS with PC'98 support
  - 4Mbit flash ROM (Intel FWH) for easy upgrade
  - Support DMI, PnP, Green function and ACPI (default support)
  - ACPI support suspend to RAM, USB wake up

- **Storage**
  - IDE Interface
    - Support one enhanced IDE channel up to two HDDs or CD-ROM support PIO 4, Ultra DMA/33/66/100 and Bus master feature.
    - IDE header x1
- **On Board I/O**
  - I/O
    - Support four serial ports for UART
    - Parallel port support SPP/EPP/ECP
    - Support four USB 2.0 Ports; four panel mount connectors; UHCI compliant
    - Support one IrDA (share one serial port)
    - One IEEE 1394A fire wire port (This function is optional only for PEB-3732VL2A model)
- **Hardware Monitoring**
  - Support CPU voltage, temperature and FAN monitoring
- **Watch Dog Timer**
  - Support Watch-Dog Timer
- **PCI Expansion**
  - Support one standard PCI slot (EmbATX defined)
  - PCI slot with expansion capability (through riser card up to 3 PCI slots)
  - PCI bus mastering
- **On Board Ethernet**
  - Support 10/100 MB Base-TX
  - One ICH4 Integrated MAC controller
  - Support Wake-on-LAN
- **IEEE 1394 (optional only for PEB-3732VL2A, by project)**
  - PCI 1394a integrated Host controller
  - 1394a OHCI Link Layer controller with integrated 400Mbit 2 port PHY
  - Supports provisions of IEEE 1394-1995 standard for high performance serial bus and P1394a supplement 4.0
  - 6-pin header for 2 IEEE 1394 Port
- **Audio**
  - AC97 v2.3 CODEC
  - 1/8" photo jack for line in or microphone
  - 1/8" photo jack for line out
  - 4-pin stereo CDIN header for external CD line in
- **ACPI compliant support the full-on (S0), Stop Grant (S1), power management states if ATX power supply unit applied**

- **Real Time Clock/Calendar (RTC)**
  - Compatible for 7 years of data retention to support real Y2K
  - An external Li battery
  - Overcurrent protection to comply with IEC 601
- **Power on/off**
  - Soft on and 4 seconds override
  - Header for connection to membrane switch
- **Keyboard and PS/2 Mouse interface**
  - Support one mini-DIN 6-pin connectors for keyboard and mouse
- **Internal Connector**
  - IDE connector
  - LCD LVDS interfaces
  - LCD inverter interface
  - PS/2 mouse connector
  - 3-pin, 0.10" pitch fan header
  - 8-pin input power header
  - 8-pin header for connection to membrane switch panel
  - 2-pin reset header
  - 10-pin header x2 for USB
  - 6-pin header for 2 IEEE 1394 Port (optional)
- **Physical and Environmental requirements**
  - Outline Dimension (L x W): 203mm X 146mm
  - Power requirements: TBD
  - Operating temperature: 0 to 55 °C
  - Relative Humidity 5% to 95%, non-condensing

### 1.2.1 Mechanical Drawing



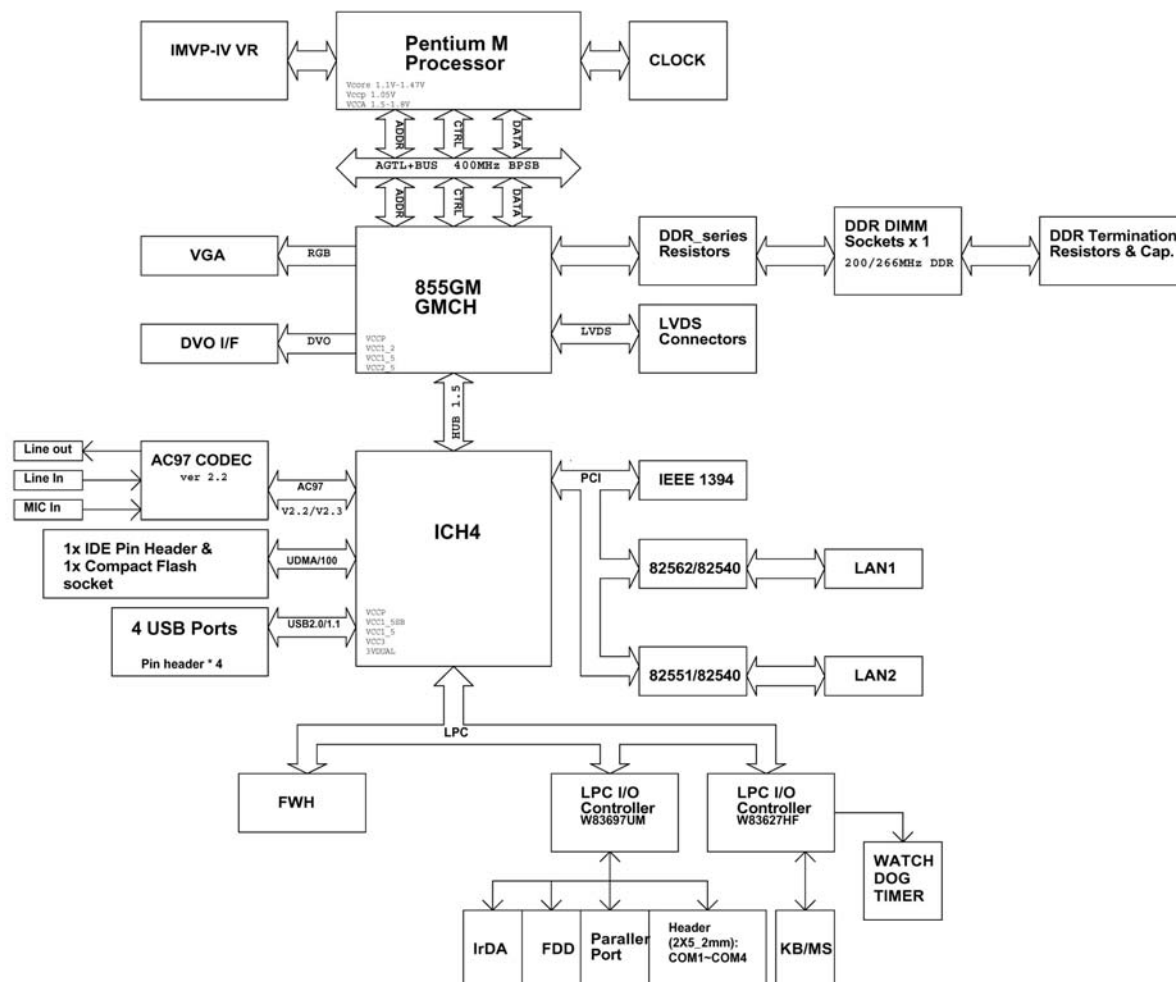
## 1.3 System Architecture

The system architecture of PEB-3730/3732 includes two main Intel EID chips, Intel 855GME/852GM chipset supports Intel low power Pentium M or Celeron M processor, DDR-SDRAM, Intel extreme graphics 2 and its ICH4 supports PCI bus interface, APM, ACPI compliant power management, USB port, SMBus communication, and Ultra DMA/33/66/100 IDE Master, and it also provides a Fast Ethernet controller. The Winbond I/O Controller is responsible for PS/2 Keyboard/Mouse, UARTs, FDC, Hardware Monitor, Parallel, Watch Dog Timer and Infrared interface.

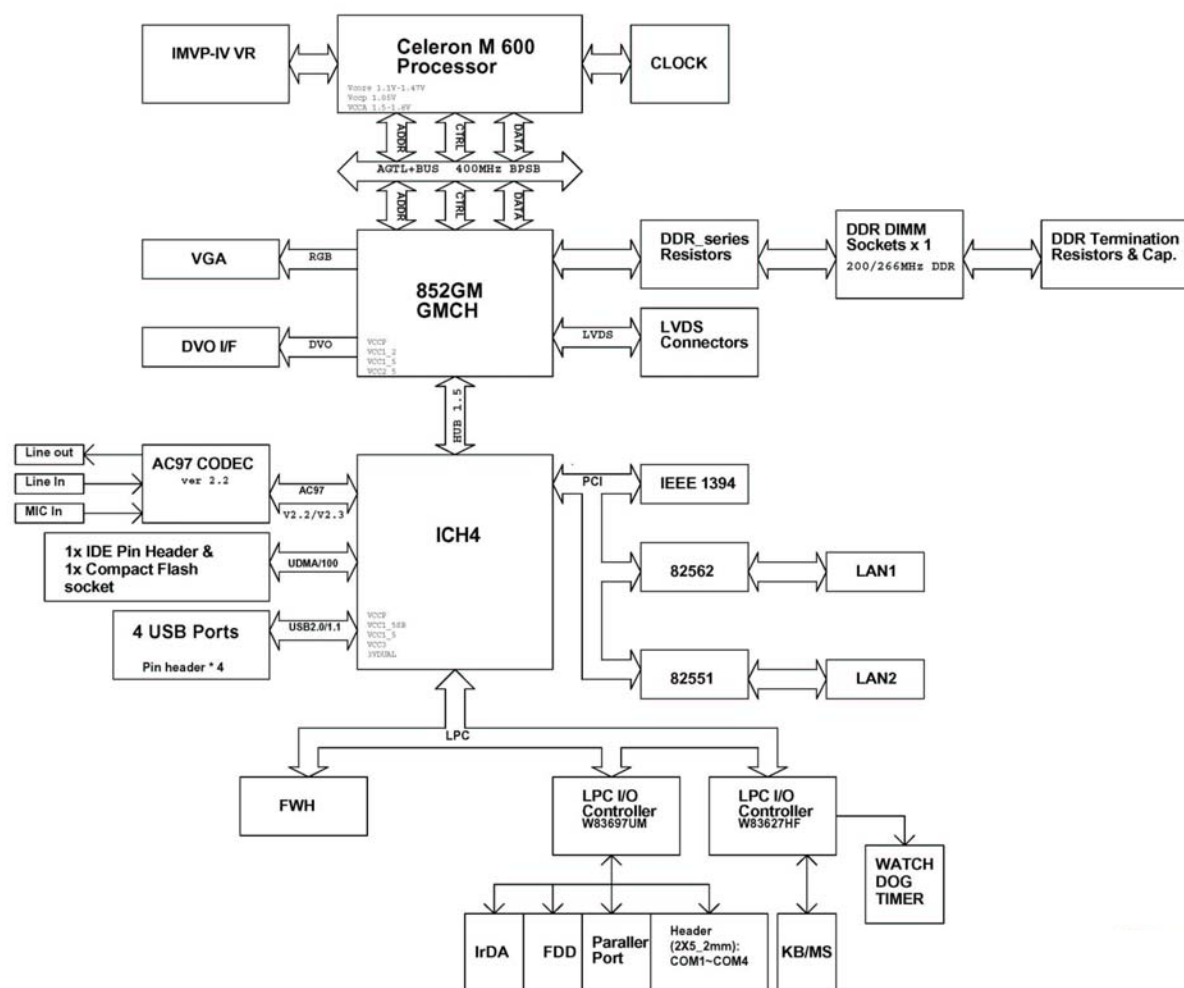
The special pin configuration of the CPU socket adopts the uFC-PGA2 478 pins in total. This new generation Pentium M or Celeron M provides better performance to many applications.

As for PEB-3732 the Ultra Low Voltage Celeron M is in uFC-BGA 2 is populated on board at 600Mhz with FSB 400Mhz.

The on-board PCI connector can support additional embATX PCI riser card for further PCI extension up to 3 PCI devices.



PEB-3730 series System Block Diagram



PEB-3732 series System Block Diagram

## Chapter 2

### Hardware Configuration

This chapter gives the definitions and shows the positions of jumpers, headers and connector. All of the configuration jumpers on PEB-3730/3732 series are in proper position. The default jumper settings shipped from factory are marked with an astral (★).

## 2.1 Jumper Setting

Jumpers provide a convenient and reversible way of reconfiguring the circuitry on a printed circuit board. When reconfiguring the system, you may need to change jumper settings on the system board. In the following sections, **Short** means covering a jumper cap over jumper pins; **Open** or **NC** (Not Connected) means removing a jumper cap from jumper pins. Refer to Figure 2-1 for the Jumper locations.

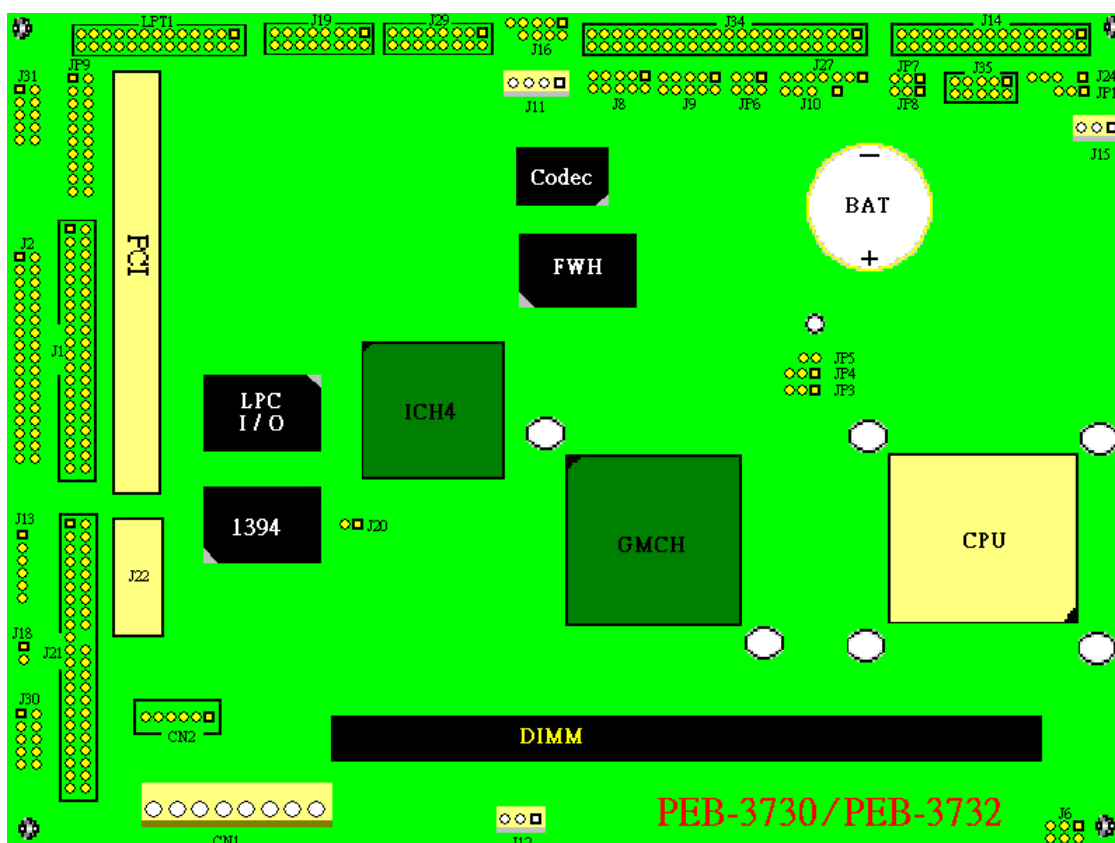






Figure 2-1 PEB-3730/3732 Series Jumper Location

**JP1: LVDS Panel Power Source Selector**

JP1	LVDS Panel VDD
1-2	3.3V ★
2-3	5V

**JP3: Power Source for CPU VCCA Selector**

JP3	CPU VCCA
1-2	1.8V for BANIAS ★
2-3	1.5V for DOTHAN

**JP4: Power Source for CPU VCCP Selector**

JP4	LVDS VCCP
1-2	1.2V for BANIAS ★
2-3	1.35V for DOTHAN

**JP5: RTC CMOS Clear Jumper Setting**

JP5	Function
OFF	Normal Operation ★
1-2	Clear CMOS Contents

**JP6: LVDS Panel Resolution Selector**

JP6	Resolution
OFF	Disable LVDS Panel
1-2	800*600,18Bits
3-4	1024*768,18Bits
1-2, 3-4	1024*768,24Bits ★
5-6	1280*1024,18Bits
1-2,5-6	1280*1024,24Bits

**JP7: LVDS Panel Backlight Active Type Selector**

JP7	Backlight Power Active Type
1-2	Low Active
2-3	High Active ★

**JP8: LVDS Panel Backlight Power Type Selector**

JP8	Backlight Power Type
1-2	5V
2-3	12V ★

**JP9: COM2 RS-232/RS-422/485 Selector**

Function	Jump Setting
RS-232	5-6,9-11,10-12,15-17,16-18
RS-422	3-4,7-9,8-10,13-15,14-16,21-22
RS-485	1-2,7-9,8-10,19-20 ★

## 2.2 Connector Allocation

I/O peripheral devices and flash disk are connected to the interface connectors and CF socket on this board computer (Figure 2-2).

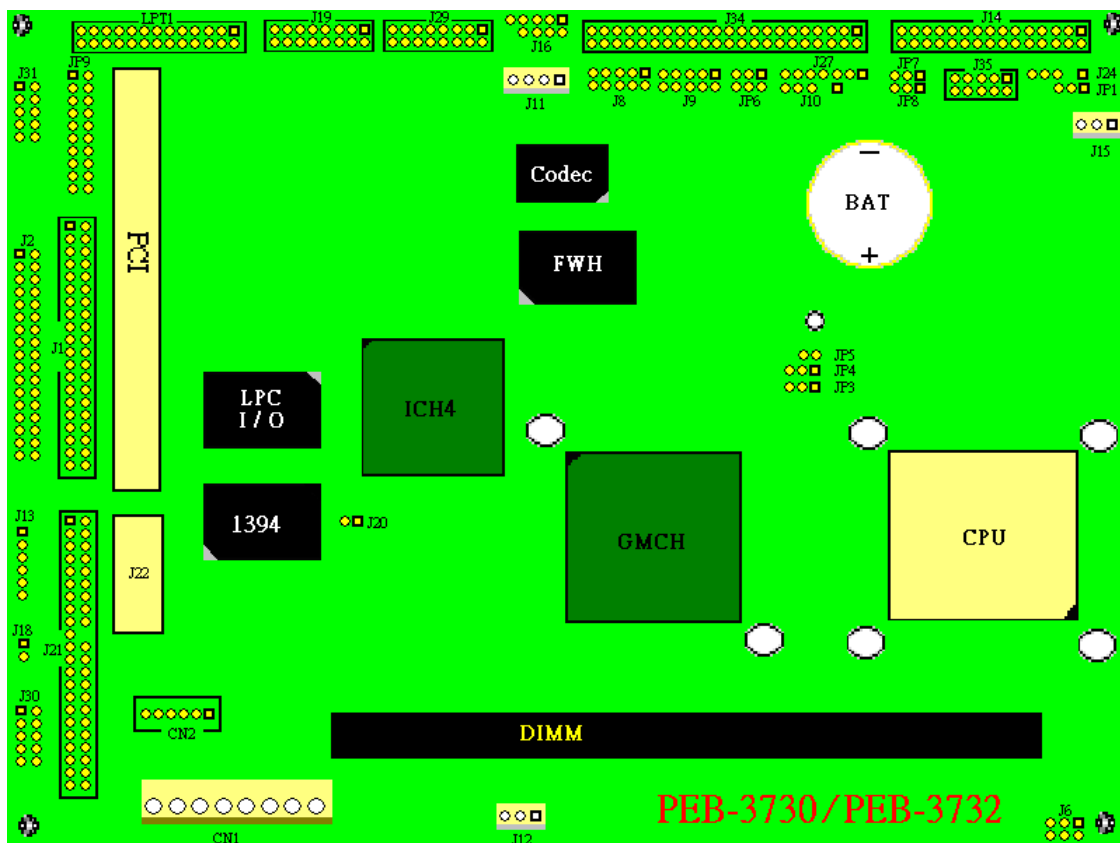


Figure 2-2 PEB-3730/3732 Series Connector Location

### Connector Function List

Connector	Function	Remark
CN1	ATX Power Connector	
CN2	1394 Connector	PEB-3730VLA & PEB-3732VLA NONE
J1	COM Port1/COM Port2/COM Port3/COM Port4 Connector	
J2	FDC Interface Connector	
J6	Power ON/OFF ;IDE1/Campact Flash Active LED; System Reset Header	
J8	USB Port1/USB Port2 Interface Connector	
J9	USB Port3/USB Port4 Interface Connector	
J10	Front Panel SMBUS Header	

J11	CD IN Connector	
J12	System FAN Connector	
J13	IR Connector	
J14	LVDS Interface Connector	
J15	CPU FAN Connector	
J16	MIC/Line IN/Line OUT Interface Connector	
J18	BUZZER Connector	
J19	LAN2 Connector	PEB-3730VLA & PEB-3732VLA NONE
J20	Thermal Sense Interface Connector (Optional)	
J21	IDE1 Interface Connector	
J24	Front Panel Connector	
J27	LVDS Inverter Connector	
J29	LAN1 Connector	
JP30	GPIO Interface Connector	
JP31	PS/2 Keyboard/Mouse Connector	
JP33	Compact Flash Connector	
J34	DVI Interface Connector	
J35	VGA Connector	

### Pin Assignments of Connectors

#### CN1: ATX Power Connector

PIN No.	Signal Description
1	+5V
2	+5V
3	+5VSB
4	+12V
5	PS-ON
6	GND
7	GND
8	ATX PWROK

#### CN2: 1394 Connector (PS, PEB-3730VLA & PEB-3732VLA NONE)

PIN No.	Signal Description
1	+12V
2	GND
3	Port B-
4	Port B+
5	Port A-
6	Port A+

**J1: COM Port1/COM Port2/COM Port3/COM Port4 Connector**

PIN No.	Signal Description	PIN No.	Signal Description
1	COM1 DCD	2	COM1 DSR
3	COM1 RXD	4	COM1 RTS
5	COM1 TXD	6	COM1 CTS
7	COM1 DTR	8	COM1 RI
9	COM1 GND	10	NC
11	COM2 DCD/RS-485 TX-	12	COM2 DSR
13	COM2 RXD/RS-485 TX+	14	COM2 RTS
15	COM2 TXD/RS-422 RX+	16	COM2 CTS
17	COM2 DTR/RS-422 RX-	18	COM2 RI
19	COM2 GND	20	NC
21	COM3 DCD	22	COM3 DSR
23	COM3 RXD	24	COM3 RTS
25	COM3 TXD	26	COM3 CTS
27	COM3 DTR	28	COM3 RI
29	COM3 GND	30	NC
31	COM4 DCD	32	COM4 DSR
33	COM4 RXD	34	COM4 RTS
35	COM4 TXD	36	COM4 CTS
37	COM4 DTR	38	COM4 RI
39	COM4 GND	40	NC

**J2: FDC Interface Connector**

PIN No.	Signal Description	PIN No.	Signal Description
1	GND	2	Drive Density Select bit 0
3	GND	4	NC
5	GND	6	Drive Density Select bit 1
7	GND	8	INDEX
9	GND	10	Motor A On
11	GND	12	Drive Select B
13	GND	14	Drive Select A
15	GND	16	Motor B On
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	Write data
23	GND	24	Write enable
25	GND	26	Track 0
27	GND	28	Write protected
29	GND	30	RDATA
31	GND	32	Head Select
33	GND	34	Diskette Change

**J6: Power ON/OFF ;IDE1/Campact Flash Active LED; System Reset Header**

PIN No.	Status
1	ON: Power ON/OFF OFF: Normal
2	
3	LED Power+ LED Power-
4	
5	ON: Reset OFF: Normal
6	

**J8: USB Port1/USB Port2 Interface Connector**

PIN No.	Signal Description	PIN No.	Signal Description
1	USB1 Power	2	GND
3	USB1 Data-	4	USB2 GND
5	USB1 Data+	6	USB2 Data+
7	USB1 GND	8	USB2 Data-
9	GND	10	USB2 Power

**J9: USB Port3/USB Port4 Interface Connector**

PIN No.	Signal Description	PIN No.	Signal Description
1	USB3 Power	2	GND
3	USB3 Data-	4	USB4 GND
5	USB3 Data+	6	USB4 Data+
7	USB3 GND	8	USB4 Data-
9	GND	10	USB4 Power

**J10: Front Panel SMBUS Header**

PIN No.	Signal Description
1	SMBUS Clock
3	GND
4	SMBUS Data
5	+5V

**J11: CD IN Connector**

PIN No.	Signal Description
1	CD IN Left
2	CD IN GND
3	CD IN GND
4	CD IN Right

**J12: System FAN Connector**

PIN No.	Function
1	GND
2	12V
3	Sense

**J13: IR Connector**

PIN No.	Signal Description
1	5V
2	NC
3	Receiving Input
4	GND
5	Transmitter Output
6	NC

**J14: LVDS Interface Connector**

PIN No.	Signal Description	PIN No.	Signal Description
2	LVDS VDD	1	LVDS VDD
4	Channel A Data1-	3	Channel A Data0+
6	Channel A Data1-	5	Channel A Data1+
8	Channel A Data2-	7	Channel A Data2+
10	Channel A Data3-	9	Channel A Data3+
12	Channel A Clock-	11	Channel A Clock+
14	Panel DDC Clock	13	Panel DDC Data
16	GND	15	GND
18	Channel B Data1-	17	Channel B Data0+
20	Channel B Data1-	19	Channel B Data1+
22	Channel B Data2-	21	Channel B Data2+
24	Channel B Data3-	23	Channel B Data3+
26	Channel B Clock-	25	Channel B Clock+
28	Panel DDC Clock	27	Panel DDC Data
30	GND	29	GND

**J15: CPU FAN Connector**

PIN No.	Function
1	GND
2	12V
3	Sense

**J16: MIC/Line IN/Line OUT Interface Connector**

PIN No.	Signal Description	PIN No.	Signal Description
1	MIC	2	GND
3	Line IN Left	4	GND
5	Line IN Right	6	GND
7	Line OUT Left	8	GND
9	Line OUT Right		

**J18: BUZZER Connector**

PIN No.	Signal
1	BUZZER+
2	BUZZER -

**J19: LAN2 Connector (PS. PEB-3730VLA & PEB-3732VLA NONE)**

PIN No.	Signal Description (MDI)	PIN No.	Signal Description (MDI)
1	LAN2 BI_DA-	2	LAN2 BI_DA+
3	LAN2 BI_DB-	4	LAN2 BI_DB+
5	LAN2 BI_DC-	6	LAN2 BI_DC+
7	LAN2 BI_DD-	8	LAN2 BI_DD+
9	LAN2 LINK100-	10	3.3V
11	LAN2 LINK1000-	12	GND
13	Active LED-	13	LAN2 GND
15	Link LED-	14	LAN2 GND

**J20: Thermal Sense Interface Connector (Optional)**

PIN No.	Signal
1	Thermal Sensor Resistor
2	Thermal Sensor Resistor



**J21: IDE1 Interface Connector**

PIN No.	Signal Description	PIN No.	Signal Description
1	RESET#	2	GND
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	GND	20	N/C
21	DREQA	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	IOCHRDY	28	GND
29	DACKA	30	GND
31	IRQ14	32	N/C
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HD_LED	40	GND
41	5V	42	5V
43	GND	44	GND

**J24: Front Panel Connector**

PIN No.	Signal Description
1	5V
2	
3	Power LED
4	Key lock-
5	GND

**J27: LVDS Inverter Connector**

PIN No.	Signal Description
1	12V
2	GND
3	GND
4	5V
5	SMBCLK
6	LVDS Backlight
7	LVDS Enable

**J29: LAN1 Connector**

PIN No.	Signal Description (MDI)	PIN No.	Signal Description (MDI)
1	LAN1 BI_DA-	2	LAN1 BI_DA+
3	LAN1 BI_DB-	4	LAN1 BI_DB+
5	LAN1 BI_DC-	6	LAN1 BI_DC+
7	LAN1 BI_DD-	8	LAN1 BI_DD+
9	LAN1 LINK100-	10	3.3V
11	LAN1 LINK1000-	12	GND
13	Active LED-	13	LAN1 GND
15	Link LED-	14	LAN1 GND

**JP30: GPIO Interface Connector**

PIN No.	Signal Description	PIN No.	Signal Description
1	GPI 4	2	GPO 0
3	GPI 5	4	GPO 1
5	GPI 6	6	GPO 2
7	GPI 7	8	GPO 3
9	GND	10	5V

**JP31: PS/2 Keyboard/Mouse Connector**

PIN No.	Signal Description	PIN No.	Signal Description
1	Mouse Data	2	Keyboard Data
3	NC	4	NC
5	GND	6	GND
7	5V	8	5V
9	Mouse Clock	10	Keyboard Clock

**J33: Compact Flash Connector**

PIN No.	Signal Description	PIN No.	Signal Description
25	GND	2	D3
24	D4	4	D5
23	D6	6	D7
7	#CS0	8	A10
9	#ATA SEL	10	A9
11	A8	12	A7
13	VCC	14	A6
15	A5	16	A4
17	A3	18	A2
19	A1	20	A0

21	D0	22	D1
23	D2	24	#IOCS16
25	#CD2	26	#CD1
27	D11	28	D12
29	D13	30	D14
31	D15	32	#CS1
33	#VS1	34	#IORD
35	#IOWR	36	#WE
37	INTRQ	38	VCC
39	#CSEL	40	#VS2
41	#RESET	42	IORDY
43	#INPACK	44	#REG
45	#DASP	46	#PDIAG
47	D8	48	D9
49	D10	50	GND

**J34: DVI Interface Connector**

PIN No.	Signal Description	PIN No.	Signal Description
1	NC	2	NC
3	NC	4	NC
5	NC	6	NC
7	NC	8	NC
9	NC	10	NC
11	DVOC D11	12	DVO Detect
13	DVOC D10	14	DVOBC INTR
15	DVOC D9	16	DVOC Blank
17	DVOC D8	18	NC
19	DVOC D7	20	Reset
21	DVOC D6	22	NC
23	DVOC D5	24	I2C Data
25	DVOC D4	26	I2C Clock
27	DVOC D3	28	3.3V
29	DVOC D2	30	3.3V
31	DVOC D1	32	1.5V
33	DVOC D0	34	GND
35	5V	36	DVOC HSYNC
37	5V	38	GND
39	5V	40	DVOC VSYNC
41	GND	42	GND
43	DVOC Clock+	44	DVOC Clock-

**J35: VGA Connector**

<b>PIN No.</b>	<b>Signal Description</b>	<b>PIN No.</b>	<b>Signal Description</b>
1	R	2	VCC
3	G	4	GND
5	B	6	NC
7	HSYNC	8	DATA
9	VSYNC	10	CLK

## Chapter 3

### System Installation

This chapter provides the instructions to set up PEB-3730/3732 series. The additional information enclosed to help you set up onboard PCI device and handle Watch Dog Timer (WDT) operation in software programming.

#### 3.1 INF Chipset Component Driver

Intel 855GM / 852GME chipset is a new chipset that a few old operating systems might not be able to recognize. **To overcome this compatibility issue, for Windows Operating Systems such as Windows-95/98/98SE/2000, please install INF Chipset Component driver before any of other Drivers are installed.**

You can find very easily the INF chipset component driver in \Chipset\Intel\INF directory of PEB-3730/3732 series CD-title. Please execute "infinst\_autol.exe" to start installation.

#### 3.2 Intel 855GM / 852GME Graphics Controller

Intel 855GM / 852GME chipset is the result of new design approach to optimize the shared memory architecture while maintaining the cost benefits of integration through Direct AGP and Dynamic Video Memory Technology.

With no additional video adaptor, this onboard video will be the system display output. However, system will automatically switch to off-board video adaptor if there is any. In this case, onboard 855GM / 852GME graphic features will be disabled.

There is no way to disable this onboard video function, unless one off-board PCI video card is applied onto the backplane. In this case, the off-board video card shall be picked up first based on the default BIOS setup (Initial Display First) in "Integrated Peripheral" Setup Menu.

##### **Drivers Support**

Please find Intel 855GM / 852GME driver in /Graphics directory of PEB-3730/3732 series CD-title. Drivers support Windows-95/98/98SE/ME, Windows-NT 4.0, Windows-2000, OS2, and Linux.

- (1) Windows-95/98/98SE/ME: Please execute \Graphic\Intel\Extreme\win9x\win9x1361.exe to start graphics driver installation.

- (2) Windows-NT 4.0: Please execute \Graphic\Intel\Extreme\WinNT4\winnt41361.exe to start graphics driver installation.
- (3) Windows-2000/XP: Please execute \Graphic\Intel\Extreme\Win2KXP\win2k\_xp141.exe to start graphics driver installation.
- (4) Redhat Linux V6.2: Please refer to the "20030425-i386.txt" file in \Graphic\Intel\Extreme\Linux directory for graphics drivers installation guide.

### 3.3 Intel Fast Ethernet Controller

This Fast Ethernet function is supported by Intel 82562/82551/82540 embedded PHY and interfaced via Intel 82562EX Platform LAN Connect (PLC).

#### **Drivers Support**

Please find LAN driver in \Ethernet\ IntelPRO\ directory of PEB-3730/3732 series CD-title. The drivers support Windows-NT 3.51/4.0, Windows-95/98/98SE/ME, Windows-2000, and SCO OpenServer 5.0.2, SCO Unixware 7.0, OS2 and Linux.

#### **On-board LED Indicator (for LAN status)**

PEB-3730/3732 series provides two LED indicators with RJ-45 connector to report Intel 82801BA MAC Fast Ethernet interfaces status. Please refer to the table below as a quick reference guide.

Intel 82562EX MAC	Name of LED	Operation of Ethernet Port	
		ON	OFF
Amber	LAN speed LED	100 Mbps	10 Mbps
Green	LAN active LED	Active	No active
Green	LAN Link Integrity LED	Good link in 10 or 100 Mbps	No link

There is no way to disable this onboard Ethernet function.

### **3.4 Intel 82801DB AC'97 Codec Controller**

This on-board Audio function is supported by Intel 82801DB (ICH4) embedded AC'97 Codec Controller.

#### **Drivers Support**

Please find Sound driver in \Audio\AC97\Realtek directory of PEB-3730/3732 series CD-title. The drivers support Windows-NT 4.0, Windows-95/98/98SE, Windows-2000 and Windows-XP.

To disable this onboard Audio function, please configure the "Integrated Peripheral" Setup Menu in BIOS. Change the "AC'97 Audio" setting to "Disabled" will help you to turn off this PCI Audio device.

## Chapter 4

### BIOS Setup Information

PEB-3730/3732 series is equipped with the AWARD BIOS stored in Flash ROM. The BIOS has a built-in Setup program that allows users to modify the basic system configuration easily. This type of information is stored in CMOS RAM so that it retained during power-off periods. When system is turned on, PEB-3730/3732 series communicates with peripheral devices and check its hardware resources against the configuration information stored in the CMOS memory. If any error detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the SETUP program. Some errors are significant enough to abort the start-up.

#### 4.1 Entering Setup

Turn on or reboot the computer. When the message "Hit <DEL> if you want to run SETUP" appears, press <Del> key immediately to enter BIOS setup program.

If the message disappears before you respond, but you still wish to enter Setup, please restart the system to try "COLD START" again by turning it OFF and then ON, or touch the "RESET" button. You may also restart from "WARM START" by pressing <Ctrl>, <Alt>, and <Delete> keys simultaneously. If you do not press the keys at the right time and the system will not boot, an error message will be displayed and you will again be asked to,

Press <F1> to Run SETUP or Resume

In HIFLEX BIOS setup, you can use the keyboard to choose among options or modify the system parameters to match the options with your system. The table below will show you all of keystroke functions in BIOS setup.

General Help	
↑ ↓ → ←	: Move
Enter	: Select
+ / - /PU /PD	: Value
ESC	: Exit
F1	: General Help
F2	: Item Help
F5	: Previous Values
F6	: Fail-Safe Defaults
F7	: Optimized Defaults
F9	: Menu in BIOS
F10	: Save



## 4.2 Main Menu

Once you enter PEB-3730/3732 series AWARD BIOS CMOS Setup Utility, you should start with the Main Menu. The Main Menu allows you to select from eleven setup functions and two exit choices. Use arrow keys to switch among items and press <Enter> key to accept or bring up the sub-menu.

### Phoenix- AwardBIOS CMOS Setup Utility

<ul style="list-style-type: none"><li>▶ Standard CMOS Features</li><li>▶ Advanced BIOS Features</li><li>▶ Advanced Chipset Features</li><li>▶ Integrated Peripherals</li><li>▶ Power Management Setup</li><li>▶ PnP/PCI Configurations</li><li>▶ PC Health Status</li></ul>	<ul style="list-style-type: none"><li>▶ Frequency/Voltage Control<ul style="list-style-type: none"><li>Load Fail-Safe Defaults</li><li>Load Optimized Defaults</li><li>Set Supervisor Password</li><li>Set User Password</li><li>Save &amp; Exit Setup</li><li>Exit Without Saving</li></ul></li></ul>
ESC : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item
Time, Date, Hard Disk Type ...	

**Note:**

It is strongly recommended to reload Optimal Setting if CMOS is lost or BIOS is updated.

### 4.3 Standard CMOS Setup Menu

This setup page includes all the items in a standard compatible BIOS. Use the arrow keys to highlight the item and then use the <PgUp>/<PgDn> or <+>/<-> keys to select the value or number you want in each item and press <Enter> key to certify it.

Follow command keys in CMOS Setup table to change **Date**, **Time**, **Drive type**, and **Boot Sector Virus Protection Status**.

#### Phoenix- AwardBIOS CMOS Setup Utility Standard CMOS Features

Date (mm:dd:yy)	Tue, May 18 2004	Item Help
Time (hh:mm:ss)	10 : 29 : 50	
► IDE Primary Master	[Maxtor 52049H3]	Menu Level ►
► IDE Primary Slave	[None]	
► IDE Secondary Master	[None]	Change the day, month, year and century
► IDE Secondary Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EVG/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	1014784K	
Total Memory	1015808K	
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults		

### ■ Menu Selections

Item	Options	Description
Date	mm:dd:yy	Change the day, month, year and century
Time	hh:mm:ss	Change the internal clock
IDE Primary Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Primary Slave	Options are in its sub menu	Press <Enter> to enter the next page for detail hard drive settings
IDE Secondary Master	Options are in its sub menu	Press <Enter> to enter the next page for detail hard drive settings
IDE Secondary Slave	Options are in its sub menu	Press <Enter> to enter the next page for detail hard drive settings
Drive A Drive B	None 360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in	Press <Enter> to enter the next page for detail hard drive settings
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, But Keyboard All, But Diskette All, But Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	640K	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up
Total Memory	N/A	Displays the total memory available in the system

## 4.4 IDE Adaptors Setup Menu

The IDE adaptors control the IDE devices, such as hard disk drive or CDROM drive. It uses a separate sub menu to configure each hard disk drive.

### Phoenix- AwardBIOS CMOS Setup Utility IDE Primary Master

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto	Menu Level ▶  To auto-detect the HDD's size, head ... on this channel
Access Mode	Auto	
Capacity	20492MB	
Cylinder	39704	
Head	16	
Precomp	0	
Landing Zone	39703	
Sector	63	
↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults		

### ■ Menu Selections

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Primary Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE !
Access Mode	CHS LBA Large Auto	Choose the access mode for this hard disk
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.
The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual'		
Cylinder	Min = 0	Set the number of cylinders for this hard

	Max = 65535	disk
Head	Min = 0 Max = 255	Set the number of read/write heads
Precomp	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no hard disk
Landing zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

## 4.5 Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

### Phoenix- AwardBIOS CMOS Setup Utility Advanced BIOS Features

		Item Help
CPU Feature	[Press Enter]	Menu Level ►
Virus Warning	[Disabled]	
CPU L1 Cache	[Enabled]	
CPU L2 Cache	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Swap Floppy Seek	[Disabled]	
Boot Up Floppy Seek	[Enabled]	
Boot up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
X Typematic Rate (Chars/sec)	6	
X Typematic delay (Msec)	250	
Security Option	[Setup]	
APIC Mode	[Enabled]	
MPS Version Control For OS	[1.4]	
OS Select For DRAM > 64MB	[Non-OS2]	
Report No FDD For WIN 95	[No]	
Small Logo(EPA) Show	[Disabled]	
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults		

**Virus Warning**

It allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

**CPU L1 Cache / CPU L2 Cache**

These two categories speed up memory access. However, it depends on CPU/chipset design.

Enabled	Enable cache
Disabled	Disable cache

**Quick Power On Self Test**

Allows the system to skip certain tests while booting. This will decrease the time needed to boot the system.

Enabled	Enable quick POST
Disabled	Normal POST

**First/Second/Third Boot Device**

Select your Boot Device Priority.

The choice: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2 HDD-3, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD and Disabled.

**Boot Other Device**

Select Your Boot Device Priority.

The choice: Enabled, Disabled.

**Swap Floppy Drive**

If the system has two floppy drives, choose enable to assign physical driver B to logical drive A and Vice-Versa.

The choice: Enabled, Disabled.

**Boot Up Floppy Seek**

Enabled tests floppy drives to determine whether they have 40 or 80 tracks.

The choice: Enabled, Disabled.

**Boot Up NumLock Status**

Select power on state for NumLock.

The choice: Off, On.

**Gate A20 Option**

Fast-lets chipsets control Gate A20 and Normal - a pin in the keyboard controller controls Gate A20. Default is Fast.

The choice: Normal, Fast.

**Typematic Rate Setting**

Keystrokes repeat at a rate determined by the keyboard controller - When enabled, the typematic rate and typematic delay can be select.

The choice: Enabled, Disabled.

**Typematic Rate (Chars/sec)**

The rate at which character repeats when you hold down a key.

The choice: 6, 8, 10, 12, 15, 20, 24, 30.

**Typematic delay (Msec)**

The delay before key strokes begin to repeat.

The choice: 250, 500, 750, 1000.

**Security Option**

Select whether the password is required every time the system boots or only when you enter setup.

<b>System</b>	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
<b>Setup</b>	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

### **APIC Mode**

The choice: Enabled, Disabled.

### **MPS Version Control For OS**

The choice: 1.1 / 1.4.

### **OS Select For DRAM > 64MB**

Select OS/2 only if you are running SO/2 operating system with greater than 64MB of RAM on the system.

The choice: Non-OS2, OS2.

### **Report No FDD for WIN 95**

The choice: No, Yes.

### **Small Logo (EPA) Show**

The choice: Enabled, Disabled.



## 4.6 Advanced Chipset Features

This section allows you to configure the system based on the specific features of the Intel 82852GME Chipset. This Chipset manages bus speeds and access to system memory resources, such as DRAM (DDR SDRAM) and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

### Phoenix- AwardBIOS CMOS Setup Utility Advanced Chipset Features

Item Help	
DRAM Timing Selectable	[By SPD]
X CAS Latency Time	[2]
X Active to Precharge Delay	[6]
X DRAM RAS# to CAS# Delay	[3]
X DRAM RAS# Precharge	[3]
DRAM Data Integrity Mode	[Non-ECC]
System BIOS Cacheable	[Enabled]
Video BIOS Cacheable	[Disabled]
Memory Hole At 15M-16M	[Disabled]
Delayed Transaction	[Enabled]
Delay Prior to Thermal	[16 Min]
AGP Aperture Size (MB)	[64]
<b>** On-Chip VGA Setting **</b>	
On-Chip VGA	[Enabled]
On-Chip Frame Buffer Size	[32MB]
Boot Display	[CRT]
Panel Scaling	[Auto]
Panel Type	[640X480 LVDS]
Onboard AC97 Control	[Enabled]
Onboard LAN Control	[Enabled]
FWH Write Protection	[Enabled]
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults	

This chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

**DRAM Timing Selectable**

This option provides DIMM plug-and-play support by serial presence detect (SPD) mechanism via the system management bus (SMBUS) interface.

The choice: Manual, By SPD.

**CAS Latency Time**

This option controls the number of SCLKs between the time a read command is sampled by the SDRAMs and the time the GMCH samples correspondent data from the SDRAMs.

The choice: 2, 2.5.

**Active to Precharge Delay**

This is to DDR standard accordingly.

The choice: 5, 6, 7.

**DRAM RAS# to CAS# Delay**

This option controls the number of SCLKs (SDRAM Clock) from a row activate command to a read or write command. If your system installs good quality of SDRAM, you can set this option to "3 SCLKs" to obtain better memory performance. Normally, the option will be set to Auto.

The choice: 2, 3.

**DRAM RAS# Precharge**

This option controls the number of SCLKs for RAS# precharge. If your system installs good quality of SDRAM, you can set this option to "3 SCLKs" to obtain better memory performance. It is set to auto normally.

The choice: 2, 3.

**DRAM Data Integrate Mode**

There are two options available. The DRAM integrity mode will be implemented by the parity algorithm when this option is set to "Non-ECC".

The choice: Non ECC, ECC.

**System BIOS Cacheable**

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The choice: Enabled, Disabled.

**Video BIOS Cacheable**

Select "Enabled" to enable caching VGA BIOS into L2 cache to get higher display performance. "Disabled" to ignore this BIOS caching function.

The choice: Enabled, Disabled.

**Memory Hole At 15-16M**

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16MB.

The choice: Enabled, Disabled.

**Delayed Transaction**

Select "Enabled" to enable delay transaction. This will enhance performance for data transmission between different PCI bus.

The choice: Enabled, Disabled.

**Delay Prior to Thermal**

The choice: 4 Min, 8 Min, 16 Min, 32 Min.

**AGP Aperture Size (MB)**

The choice: 4, 8, 16, 32, 64, 128, 256.

**On-Chip VGA**

The choice: Enabled, Disabled.

**On-Chip Frame Buffer Size**

Users can set the display memory size that shared from main memory.

The choice: 1MB, 4MB, 8MB, 16MB, 32MB.

**Boot Display**

The choice: CRT, LVDS, CRT+LVDS, EFP, CRT+EFP.

**Panel Scaling**

The choice: Auto, On, Off.

**Panel Type**

The choice: 640X480 LVDS, 800X600 LVDS, 1024X768 LVDS, 1280X1024 LVDS, 1400X1050 LVDS, 1600X1200 LVDS.

**Onboard AC97 Control**

This item allows you to enable AC97 Audio function.

The choice: Enabled, Disabled.

**Onboard LAN Control**

This item allows you to enable LAN function.

The choice: Enabled, Disabled.

**FWH Write Protection**

The choice: Enabled, Disabled.

## 4.7 Integrated Peripherals

### Phoenix- AwardBIOS CMOS Setup Utility Integrated Peripherals

<ul style="list-style-type: none"><li>▶ OnChip IDE Device [Press Enter]</li><li>▶ Onboard Device [Press Enter]</li><li>▶ Super IO Device [Press Enter]</li></ul>	Item Help
	Menu Level ▶
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults	

Phoenix- AwardBIOS CMOS Setup Utility  
OnChip IDE Device

On-Chip Primary PCI IDE	[Enabled]	Item Help
IDE Primary Master PIO	[Auto]	Menu Level ▶
IDE Primary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
On-Chip Secondary PCI IDE	[Enabled]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
IDE HDD Block Mode	[Enabled]	
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults		

### OnChip Primary/Secondary PCI IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface.

The choice: Enabled, Disabled.

### IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

### IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33/66/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33/66/100, select Auto to enable BIOS support.

The choice: Auto, Disabled.

### **IDE HDD Block Mode**

If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

The choice: Enabled, Disabled.

#### Phoenix- AwardBIOS CMOS Setup Utility Onboard Device

USB Controller	[Enabled]	Item Help
USB 2.0 Controller	[Enabled]	
USB Keyboard Support	[Disabled]	Menu Level ▶
USB Mouse Support	[Disabled]	
Init Display First	[Onboard/ AGP]	
↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults		

### **USB Controller**

This item allows you to enable/disable USB (Universal Serial Bus) function.

The choice: Enabled, Disabled.

### **USB 2.0 Controller**

This entry is for disable/enable EHCI controller only. This BIOS itself may/may not have high speed USB support built in, the support will be automatically turn on when high speed device were attached.

The choice: Enabled, Disabled.

### **USB Keyboard Support**

This item allows you to enable USB keyboard function under POST, BIOS setup menu, DOS, or Windows-NT with no USB driver loaded.

The choice: Enabled, Disabled.

### **USB Mouse Support**

This item allows you to enabled USB Mouse function under POST, BIOS Setup menu, DOS, or Window-NT with no USB driver loaded.

The choice: Enabled, Disabled.

**Init Display First**

This item allows you to select the first display port to be initialized.

The choice: PCI Slot, Onboard/ AGP.

Phoenix- AwardBIOS CMOS Setup Utility  
Super IO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	Menu Level ►
Onboard Serial Port 2	[2F8/IRQ3]	
UART Mode Select	[Normal]	
X RxD, TxD Active	Hi, Lo	
X IR Transmission Delay	Enabled	
X UR2 Duplex Mode	Half	
X Use IR Pins	IR-Rx2Tx2	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
X EPP Mode Select	EPP1.7	
X ECP Mode Use DMA	3	
PWRON After PWR-Fail	[Off]	
Watch Dog Timer Select	[Disabled]	
Onboard Serial Port 3	[3E8]	
Serial Port 3 Use IRQ	[IRQ10]	
Onboard Serial Port 4	[2E8]	
Serial Port 4 Use IRQ	[IRQ11]	
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults		

**Onboard FDC Controller**

This item allows you to enable/disable onboard Floppy disk controller.

The choice: Enabled, Disabled.

**Onboard Serial Port 1/Port 2**

Select an address and corresponding interrupt for the first and second serial ports.

The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

**UART Mode Select**

This item allows users to select Infrared transmission mode.

<b>Normal</b>	Disable Infrared function
<b>IrDA</b>	Select IrDA mode transmission
<b>ASKIR</b>	Select ASKIR mode transmission

**RxD, TxD Active**

This item is to configure Infrared transmission rate. Four options are available:

<b>Hi, Hi</b>	High rate for receiving / High rate for transmitting
<b>Hi, Lo</b>	High rate for receiving / Low rate for transmitting
<b>Lo, Hi</b>	Low rate for receiving / High rate for transmitting
<b>Lo, Lo</b>	Low rate for receiving / Low rate for transmitting

**IR Transmission Delay**

This option will be available when IR is enabled.

The choice: Enabled, Disabled.

**UR2 Duplex Mode**

The available choices are full duplex mode and half duplex mode

The choice: Full, Half.

**Use IR Pins**

The available choices are IR-Rx2Tx2/ RxD2, TxD2.

The choice: IR-Rx2Tx2 / RxD2, TxD2.

**Onboard Parallel Port**

This item allows you to configure I/O address of the onboard parallel port.

The choice: Disabled, 378/IRQ7, 278/IRQ5, 3BC/IRQ7.

**Parallel Port Mode**

There are four different modes for the onboard parallel port :

<b>SPP</b>	Switch to SPP mode
<b>EPP</b>	Switch to EPP mode
<b>ECP</b>	Switch to ECP mode
<b>ECP + EPP</b>	Switch to ECP + EPP mode



**EPP Mode Select**

Select different version of EPP mode.

The choice: EPP1.7, EPP1.9.

**ECP Mode Use DMA**

Select a proper DMA channel for ECP mode.

The choice: 3, 1.

**PWRON After PWR-Fail**

This item allows user to configure the power status of using ATX power supply after a serious power loss occurs.

<b>ON</b>	System automatically restores power back
<b>OFF</b>	System stays at power -off
<b>Former-Sts</b>	System restores back to previous status (On or Off)

**Watch Dog Timer Select**

This BIOS testing option is able to reset the system according to the selected table.

The choice: Disabled, 10 Sec, 20 Sec, 30 Sec, 40 Sec, 1 Min, 2 Min, 4 Min.

**Onboard Serial Port 3 / Port 4**

The choice: 3F8, 2F8, 3E8, 2E8, Disabled.

**Serial Port 3 / Port 4 Use IRQ**

The choice: IRQ10, IRQ11, IRQ3, IRQ4, IRQ5, IRQ7, IRQ9.

## 4.8 Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy while operating in a manner consistent with your own style of computer use.

### Phoenix- AwardBIOS CMOS Setup Utility Power Management Setup

ACPI Function	[Enabled]	Item Help	
ACPI Suspend Type	[S1(POS)]		
X Run VGABIOS if S3 Resume	Auto	Menu Level ▶	
Power Management	[User Define]		
Video Off Method	[DPMS]		
Video Off In Suspend	[Yes]		
Suspend Type	[Stop Grant]		
Suspend Mode	[Disabled]		
HDD Power Down	[Disabled]		
Soft-Off by PWR-BTTN	[Instant-Off]		
CPU THRM-Throtting	[50%]		
Wake-up by PCI card	[Disabled]		
Power On by Ring	[Disabled]		
X USB KB Wake-Up From S3	Disabled		
Resume by Alarm	[Disabled]		
X Date(of Month) Alarm	0		
X Time(hh:mm:ss) Alarm	0 : 0 :0		
** Reload Global Timer Events **			
Primary IDE 0	[Disabled]		
Primary IDE 1	[Disabled]		
Secondary IDE 0	[Disabled]		
Secondary IDE 1	[Disabled]		
FDD,COM,LPT Port	[Disabled]		
PCI PIRQ[A-D]#	[Disabled]		
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults			

### ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).

The choice: Enabled, Disabled.

**ACPI Suspend Type**

To decide which ACPI suspend mode to use.

The choice: S1(POS), S3(STR), S1&S3.

**Run VGA BIOS if S3 Resume**

The choice: Auto, Yes, No.

**Power Management**

This category allows you to select the type (or degree) of power saving and is directly related to "HDD Power Down", "Suspend Mode".

There are three selections for Power Management, three of which have fixed mode settings.

<b>Min. Power Saving</b>	Minimum power management. Suspend Mode = 1 Hour, and HDD Power Down = 15 Min.
<b>Max. Power Saving</b>	Maximum power management. Suspend Mode = 1 Min., and HDD Power Down = 1 Min.
<b>User Defined</b>	Allows you to set each mode individually. When not disabled, Suspend Mode ranges from 1 min. to 1 Hour and HDD Power Down ranges from 1 Min. to 15 Min.

**Video Off Method**

This determines the manner in which the monitor is blanked.

<b>V/H SYNC+Blank</b>	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
<b>Blank Screen</b>	This option only writes blanks to the video buffer.
<b>DPMS</b>	Initial display power management signaling.

**Video Off In Suspend**

This allows user to enable/disable video off in Suspend Mode.

The choice: Yes, No.

**Suspend Type**

Two options are available: Stop Grant and PwrOn Suspend.

The choice: Stop Grant, PwrOn Suspend.

### **Suspend Mode**

When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

The choice: Disabled, 1 Min, 2 Min, 4 Min, 8 Min, 12 Min, 20 Min, 30 Min, 40 Min, 1 Hour.

### **HDD Power Down**

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

The choice: Disabled, 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 6 Min, 7 Min, 8 Min, 9 Min, 10 Min, 11 Min, 12 Min, 13 Min, 14 Min, 15 Min.

### **Soft-Off by PWR-BTTN**

This item allows users to set the time to remove the power after the power button is pressed.

The choice: Instant-Off, Delay 4 Sec.

### **CPU THRM-Throttling**

When the CPU temperature reaches the preset standard. The CPU usage will be reduced to a selected level to avoid overheating.

The choice: 82.5%, 75.0%, 62.5%, 50.0%, 37.5%, 25.0%, 12.5%.

### **Wake-Up by PCI card**

This option can be enabled to support Wake Up by on-board LAN.

The choice: Disabled, Enabled.

### **Power On by Ring**

When select "Enabled", a system that is at soft-off mode will be alert to Wake-On-Modem.

The choice: Enabled, Disabled.

### **USB KB Wake-up From S3**

The choice: Enabled, Disabled.

**Resume by Alarm**

This item allows users to enable/disable the resume by alarm function. When “Enabled” is selected, system using ATX power supply could be powered on if a customized time and day is approached.

The choice: Enabled, Disabled.

**Date (of Month) Alarm**

When “Resume by Alarm” is enabled, this item could allow users to configure the date parameter of the timing dateline on which to power on the system.

The choice: 0 ~ 31.

**Time (hh:mm:ss) Alarm**

When “Resume by Alarm” is enabled, this item could allow users to configure the time parameter of the timing dateline on which to power on the system.

The choice: hh (0~23), mm (0~59), ss (0 ~59).

**Primary/Secondary IDE 0/1**

This item is to configure IDE devices being monitored by system so as to keep system out of suspend mode if the associated device is busy.

The choice: Enabled, Disabled.

**FDD, COM, LPT Port**

This item is to configure floppy device, COM ports, and parallel port being monitored by system so as to keep system out of suspend mode if the associated device is busy.

The choice: Enabled, Disabled.

**PCI PIRQ[A-D]#**

This option can be used to detect PCI device activities. If they are activities, the system will go into sleep mode.

The choice: Enabled, Disabled.

## 4.9 PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components.

This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

### Phoenix- AwardBIOS CMOS Setup Utility PnP/PCI Configurations

Reset Configuration Data	[Disabled]	Item Help
Resources Controlled By	[Auto(ESCD)]	Menu Level ►  Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot.
X IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
↑↓→←: Move    Enter: Select    +/~/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults		

#### Reset Configuration Data

Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot.

The choice: Enabled, Disabled.

#### Resource Controlled By

BIOS can automatically configure all the boot and plug and play compatible devices. If you choose Auto, you cannot select IRQ DMA and memory base address fields, since BIOS automatically assigns them.

The choice: Auto (ESCD), Manual.

**IRQ Resources**

Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the Plug AND play standard whether designed for PCI or ISA bus architecture.

Enter for more options IRQ-3/IRQ-4/IRQ-5/IRQ-7/IRQ-9/IRQ-10/IRQ-11/IRQ-12/IRQ-14/IRQ-15 assigned to.

The choice: PCI Device, Reserved.

**PCI/VGA Palette Snoop**

Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the plug and play standard whether designed for PCI or ISA bus architecture

The choice: Enabled, Disabled.

**4.10 PC Health Status**

Phoenix- AwardBIOS CMOS Setup Utility  
PC Health Status

CPU Warning Temperature	[Disabled]	Item Help
Current System Temp.	42°C /107°F	
Current CPU Temperature	38°C /100°F	Menu Level ▶
CPU FAN Speed	6750 RPM	
System FAN Speed	0 RPM	
CPU Vcore	1.45 V	
+1.05 V	1.04 V	
+3.3 V	3.26 V	
+5 V	4.99 V	
+12 V	11.91 V	
VBAT(V)	3.07 V	
5VSB(V)	4.92 V	
CPU Throttle Temperature	[Disabled]	
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults		

### **CPU Warning Temperature**

This item allows you to set a temperature above which the system will start the beeping warning. Default setting is Disabled. This function will only with “ACPI” power management and “S3 (STR)” suspend type.

The choices : Disabled, 50°C /122°F, 53°C /127°F, 56°C /133°F, 60°C /140°F, 63°C /145°F, 66°C /151°F, 70°C /158°F.

### **CPU Throttle Temperature**

This item allows you to set a temperature above which the system will operate in lower speed immediately. Default setting is Disabled. This function will only with “ACPI” power management and “S3 (STR)” suspend type.

The choice: Disabled, 60°C /140°F, 65°C /149°F, 70°C /158°F, 75°C /167°F.

## **4.11 Frequency/Voltage Control**

### Phoenix- AwardBIOS CMOS Setup Utility Frequency / Voltage Control

Auto Detect DIMM/PCI Clk      [Enabled] Spread Spectrum                      [Disabled]	Item Help
	Menu Level      ►
↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults	

### **Auto Detect PCI Clk**

The choice: Enabled, Disabled.

### **Spread Spectrum**

This item allows you to enable/disable the spread spectrum modulate.

The choice: Enabled, Disabled.



## 4.12 Default Menu

Selecting “Defaults” from the main menu shows you two options which are described below,

### Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N)? **N**

Pressing ‘Y’ loads the BIOS default values for the most stable, minimal-performance system operations.

### Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? **N**

Pressing ‘Y’ loads the default values that are factory settings for optimal performance system operations.

## 4.13 Supervisor/User Password Setting

You can set either supervisor or user password, or both of them. The differences between are:

**Set Supervisor Password** : can enter and change the options of the setup menus.

**Set User Password** : just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

### ENTER PASSWORD

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

## **PASSWORD DISABLED**

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

## **4.14 Exiting Selection**

### **Save & Exit Setup**

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? **Y**

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

### **Exit Without Saving**

Pressing <Enter> on this item asks for confirmation:

Quit Without Saving (Y/N)? **N**

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

## Chapter 5

### Trouble shooting

Due to the fact that detailed hardware installation and Pins definition on PEB-3730/3732 series have been addressed on early Chapters of this manual, this Chapter will mainly discuss about BIOS setting, OS diagnostics, and system integration issues.

#### 5.1 BIOS Setting

It is assumed that users have correctly adopted modules and connected all the device cables required before turning on AT power. CPU, CPU fan, CPU fan power cable, 184-pin DDR SDRAM, keyboard, mouse, floppy drive, IDE hard disk, printer, VGA connector, device power cables, ATX accessories or 12V 4-pin power cable are good examples that deserve attention. With no assurance of properly and correctly accommodating these modules and devices, it is very possible to encounter system failures that result in malfunction of any device.

To make sure that you have a successful start with PEB-3730/3732 series, it is recommended, when going with the boot-up sequence, to hit “DEL” key and enter the BIOS setup menu to tune up a stable BIOS configuration so that you can wake up your system far well.

##### Loading the default optimal setting

When prompted with the main setup menu, please scroll down to “**Load Optimal Defaults**”, press “Enter” and “Y” to load in default optimal BIOS setup. This will force your BIOS setting back to the initial factory configuration. It is recommended to do this so you can be sure the system is running with the BIOS setting that Portwell has highly endorsed. As a matter of fact, users can load the default BIOS setting any time when system appears to be unstable in boot up sequence.

##### Auto Detect Hard Disks

In the BIOS => Standard CMOS setup menu, pick up any one from Primary/Secondary Master/Slave IDE ports, and press “Enter”. Setup the selected IDE port and its access mode to “Auto”. This will force system to automatically pick up the IDE devices that are being connected each time system boots up.

##### Improper disable operation

There are too many occasions where users disable a certain device/feature in one application through BIOS setting. These variables may not be set back to the original values when needed. These devices/features will certainly fail to be detected.

When the above conditions happen, it is strongly recommended to check the BIOS settings. Make sure certain items are set as they should be. These include the floppy drive, COM1/COM2 ports, parallel port, USB ports, external cache, on-board VGA and Ethernet.

It is also very common that users would like to disable a certain device/port to release IRQ resource. A few good examples are

Disable COM1 serial port to release IRQ #4  
 Disable COM2 serial port to release IRQ #3  
 Disable COM3 serial port to release IRQ #10  
 Disable COM4 serial port to release IRQ #11  
 Disable parallel port to release IRQ #7..., etc.

A quick review of the basic IRQ mapping is given below for your reference.

IRQ#	Description
IRQ #0	System Counter
IRQ #1	Keyboard
IRQ #3	COM2
IRQ #4	COM1
IRQ #5	Display Controller
IRQ #5	USB 1.0/1.1
IRQ #5	USB 2.0
IRQ #5	Ethernet Controller
IRQ #6	Floppy Disk Controller
IRQ #7	Printer Port (Parallel Port)
IRQ #8	System CMOS / Real time Clock
IRQ #9	Multimedia Controller
IRQ #9	SMBus Controller
IRQ #9	Serial Bus Controller
IRQ #9	Ethernet Controller
IRQ #9	IEEE 1394 Controller
IRQ #9	ACPI Controller
IRQ #10	COM3
IRQ #11	COM4

It is then very easy to find out which IRQ resource is ready for additional peripherals. If IRQ resource is not enough, please disable some devices listed above to release further IRQ numbers.

## 5.2 FAQ

### Unboot issues

**Symptom:** After installing CPU and cable all required, but why my Embedded board is still not working?

**Solution:** First of all, please double check if your CPU is installed and fasten on CPU socket properly. Otherwise, Embedded board will result in failure booting up.

**Symptom:** My PEB-3730/3732 series just keeps beeping, and nothing has been shown on the screen?

**Solution:** As a matter of fact, each beep sound represents different definition of error message. Therefore, please refer to the table as follow,

Beep sounds	Meaning	Action
One long beep with one short beeps	DRAM error	Change DRAM or reinstall it
One long beep constantly	DRAM error	Change DRAM or reinstall it
One long beep with two short beeps	Monitor or Display Card error	Please check Monitor connector whether it inserts properly
Beep rapidly	Power error warning	Please check Power mode setting

### Information & Support

**Q:** I am using an ATA-66 (or 100) hard drive, how can I know that ATA-66 function is started?

**A:** First of all, you need to use the 80-pin ATA-66 IDE flat cable to have this function ready. During POST, you can see ATA-66 (or 100) message while hard drive is being detected. Besides, after Microsoft series OS installation successfully, you must install ATA-66/100 driver, then the function can be active.

**Q:** How can I connect my PEB-3730/3732 series to panel?

**A:** First of all, you need to read the Panel spec and Inverter spec to understand which type of panel you will use on PEB-3730/3732 series; different panel will connect to different connector; LVDS is J14, and DVO is J34.

**Q: I am using an ATA-66 or 100 hard drive, how can I know that ATA 66/100 is active?**

**A:** As matter of fact, you need to use 80 pins ATA-66 IDE cable to enable ATA 66 function. While POST stage of detecting hard drive, you will see ATA – 66/100 messages. Besides, after installing Microsoft Windows system, you also need to install ATA 66/100 driver. Otherwise, this function won't be active in Windows.

**Q: After setting up my serial port from RS-232 to RS-485, why my serial port still cannot work.**

**A:** Unlike RS-232, RS-485 signal is differential signal, and only two pins, DATA + and DATA -, will be used. As for connection of RS-485, its DATA + and DATA - must connect to the same definition pin. For instance, "DATA +" must connect to another device's "DATA +". " DATA -" must connect to another device's "DATA -". Otherwise, RS-485 won't be able to transfer its data to another device. Moreover, while creating RS-485 cable, two data wires must be twisted together to prevent its signal from being nosed.

**Q: After installing Compact Flash, why the device on Secondary has been missing?**

**A:** In fact, the default setting for Compact Flash at Secondary Channel is master. Therefore, you might want to check if your missing device is set to the same as its default setting, master. If it is, you must set up your device to slave at Secondary Channel to avoid the devices confliction.

**Q: I am a developer of the embedded system, but I cannot find embedded driver on Portwell website or CD. Where can I get them?**

**A:** Indeed, for Intel Chipset, It is available on Intel website; here is hyperlink of Intel website:  
<http://www.intel.com/design/intarch/software/driver/index.htm> . For other devices, please visit their website to download those embedded drivers. However, we will put those drivers on our website in future, and CD.

**Q: I am a customer of Portwell, where can I get a new BIOS to update my SBC?**

**A:** Indeed, you can always go to Portwell Download center to download update BIOS. Besides, before downloading anything, please mail us to get your download account number.  
 Portwell Download Center  
<http://www.portwell.com.tw/download.asp>  
 To request your Account Number for Download Center, please fill out the information form on our Internet after selecting the information that you want.

**Note:**

Please visit our technical web site at

<http://www.portwell.com.tw>

For additional technical information, which isn't covered in this manual, you can mail to [tsd@mail.portwell.com.tw](mailto:tsd@mail.portwell.com.tw) or you can also send mail to our sales, they will be very delighted to forward them to us.

**System Memory Address Map**

Each On-board device in the system is assigned a set of memory addresses, which also can be identical of the device. The following table lists the system memory address used.

Memory Area	Size	Device Description
0000 - 003F	1K	Interrupt Area
0040 - 004F	0.3K	BIOS Data Area
0050 - 006F	0.5K	System Data
0070 - 04C3	17K	DOS
04C4 - 089B	15K	Program Area
089C - 9FFE	605K	[Available]
9FFF - 9FFF	0.1K	Unused
= Conventional memory ends at 640K =		
A000 - AFFF	64K	VGA Graphics
B000 - B7FF	32K	Unused
B800 - BFFF	32K	VGA Text
C000 - CCDF	51K	Video ROM
CCE0 - CE49	5.7K	Unused
CE4A - D7FF	38K	High RAM
D800 - E7FF	64K	Page Frame
E800 - EFFF	32K	Unused
F000-FFFF	64K	System ROM
HMA	64K	First 64K Extended



**Interrupt Request Lines (IRQ)**

Peripheral devices can use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

<b>IRQ#</b>	<b>Current Use</b>	<b>Default Use</b>
IRQ 0	SMARTDRV	System Timer
IRQ 1	SMARTDRV	Keyboard Event
IRQ 2	[ Unassigned ]	Usable IRQ
IRQ 3	System ROM	COM2
IRQ 4	System ROM	COM1
IRQ 5	[ Unassigned ]	Usable IRQ
IRQ 6	System ROM	Diskette Event
IRQ 7	Unassigned	Usable IRQ
IRQ 8	System ROM	Real-time Clock
IRQ 9	[ Unassigned ]	Usable IRQ
IRQ 10	[ Unassigned ]	Usable IRQ
IRQ 11	[ Unassigned ]	Usable IRQ
IRQ 12	System ROM	IBM Mouse Event
IRQ 13	System ROM	Coprocessor Error
IRQ 14	System ROM	Hard Disk Event
IRQ 15	[ Unassigned ]	Usable IRQ